

# Determination of the X-ray Temperature Distribution of Young, Hot Stars

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# X-ray Temperatures of Hot Stars

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- Physics of shocks, magnetic fields manifest in temperature distribution, line spectrum.
- High Resolution Spectroscopy allows strong constraints on temperature distribution
- Definitive models not available

# Differential Emission Measure

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$$\text{DEM} \equiv \frac{d \int n_e^2 dV}{d \log T}$$

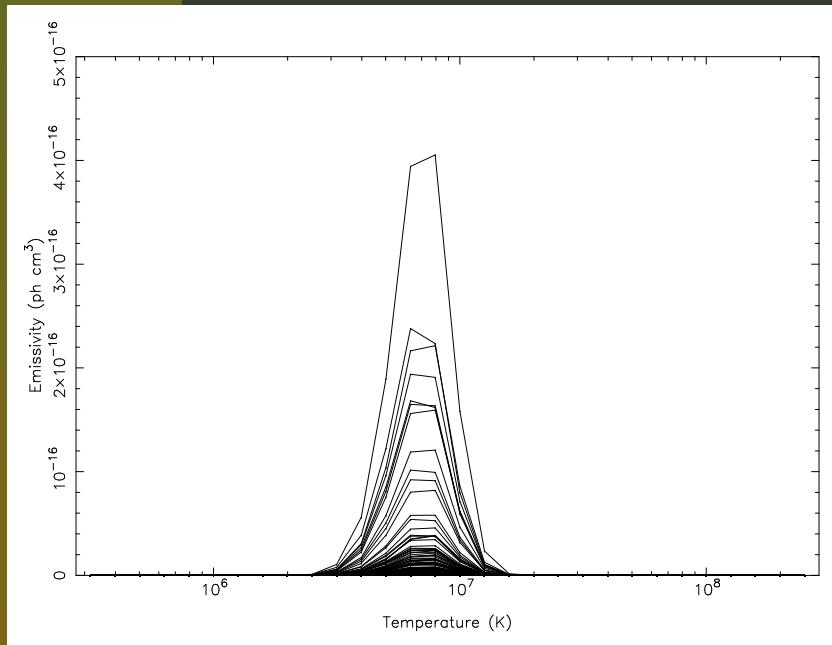
and a line luminosity is

$$L = \int P(T) \text{DEM}(T) d \log T$$

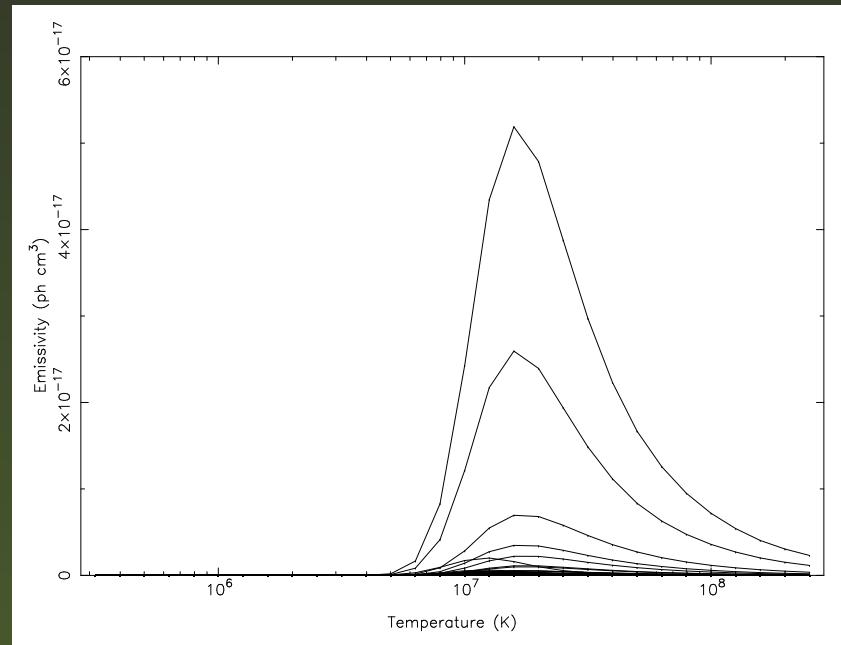
Problems: resolution, line blends, tedium

# Single Ion Similarity

Fe XVIII



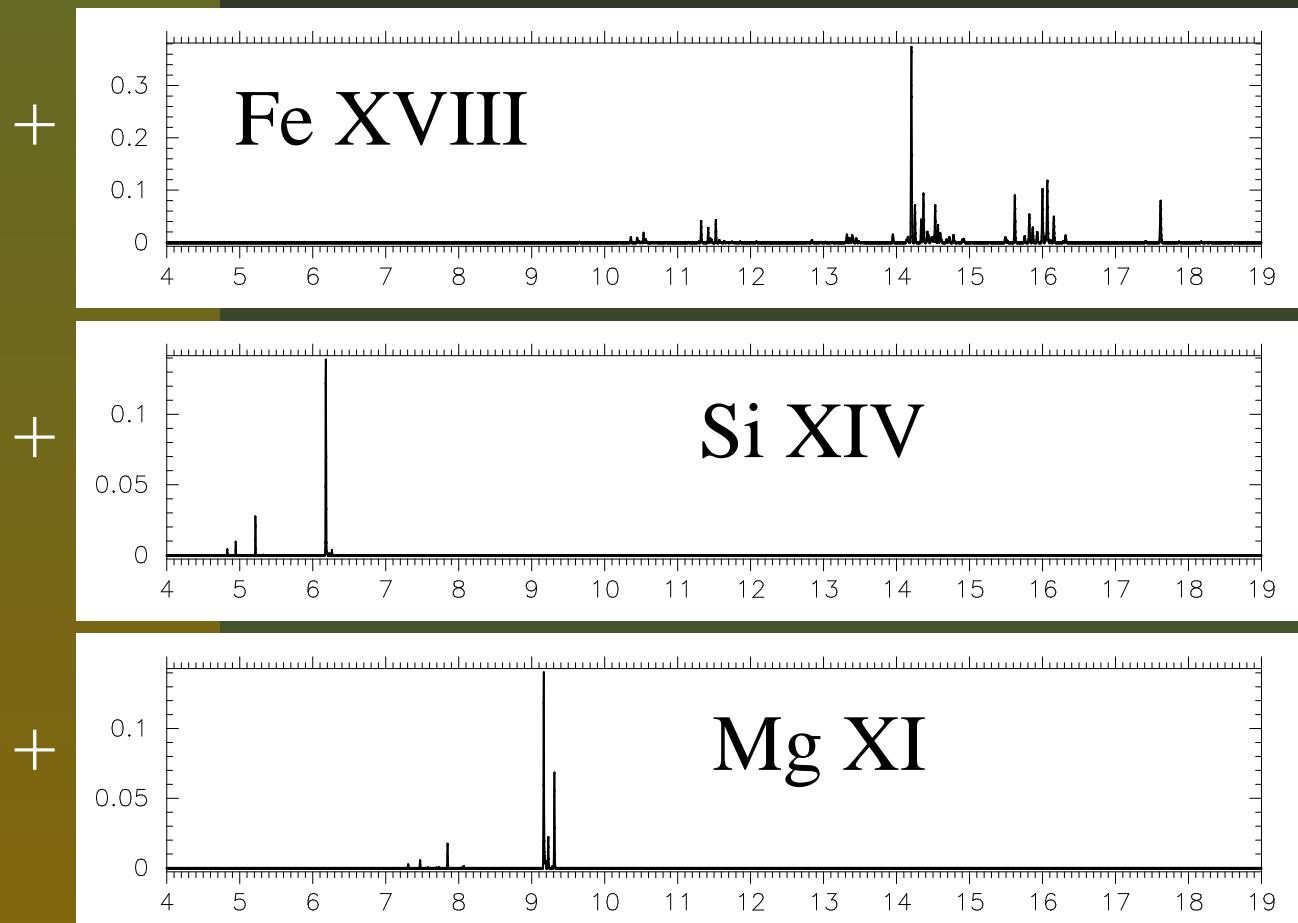
Si XIV



Data from APED

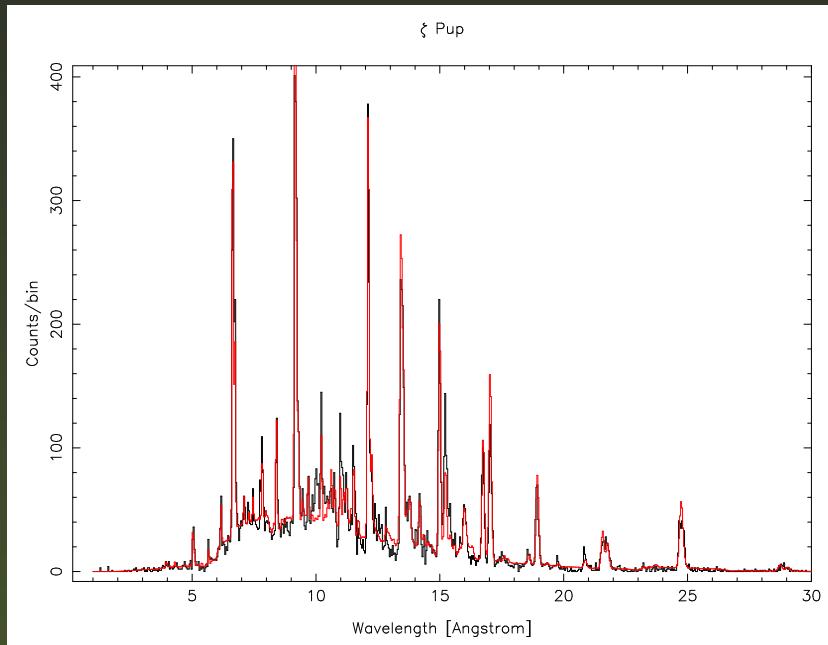
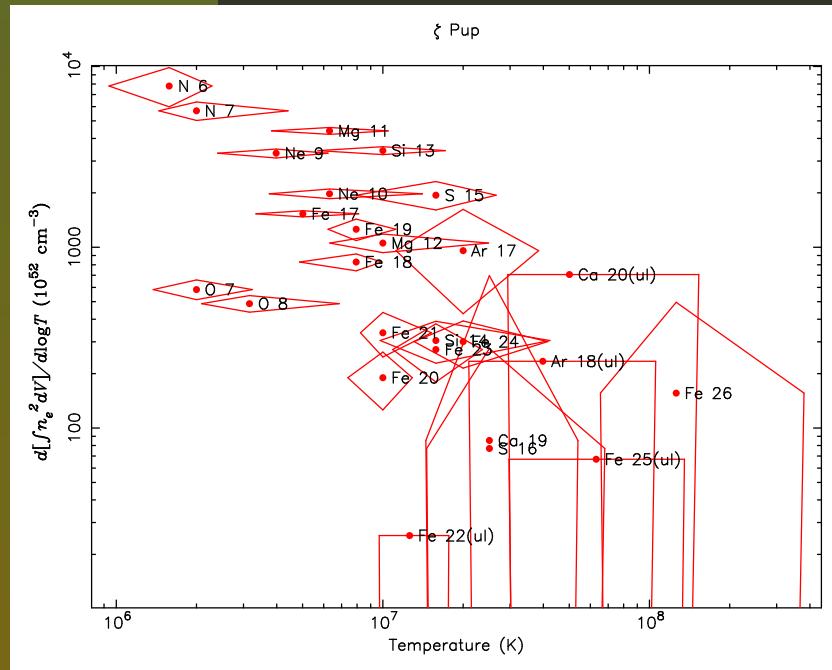
# Ion Fitting

Fit spectrum with:

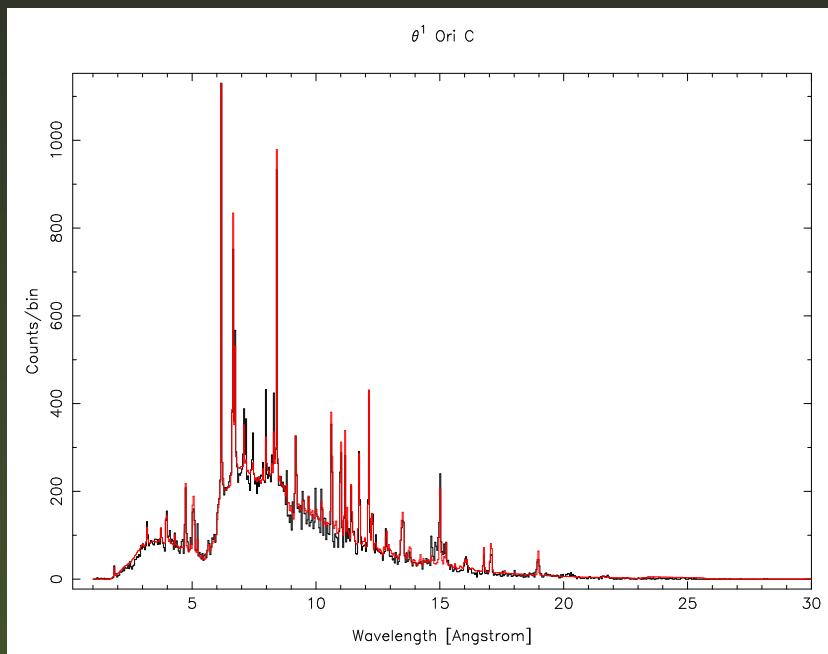
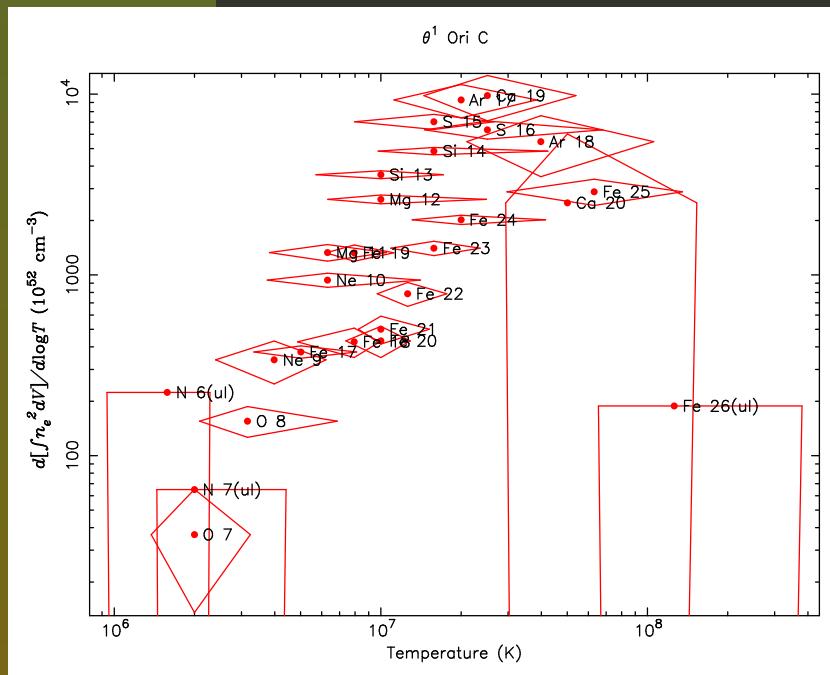


+ bremss continua

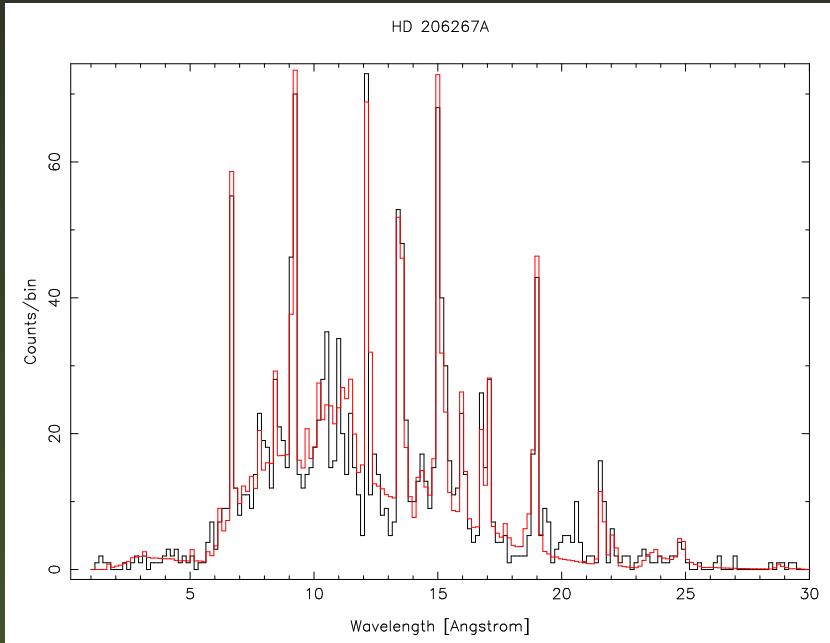
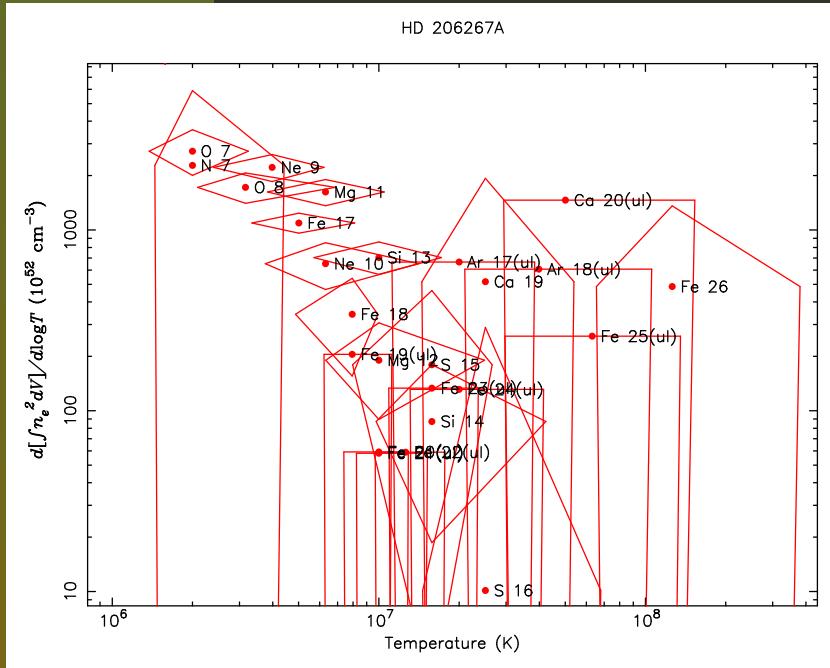
# $\zeta$ Pup



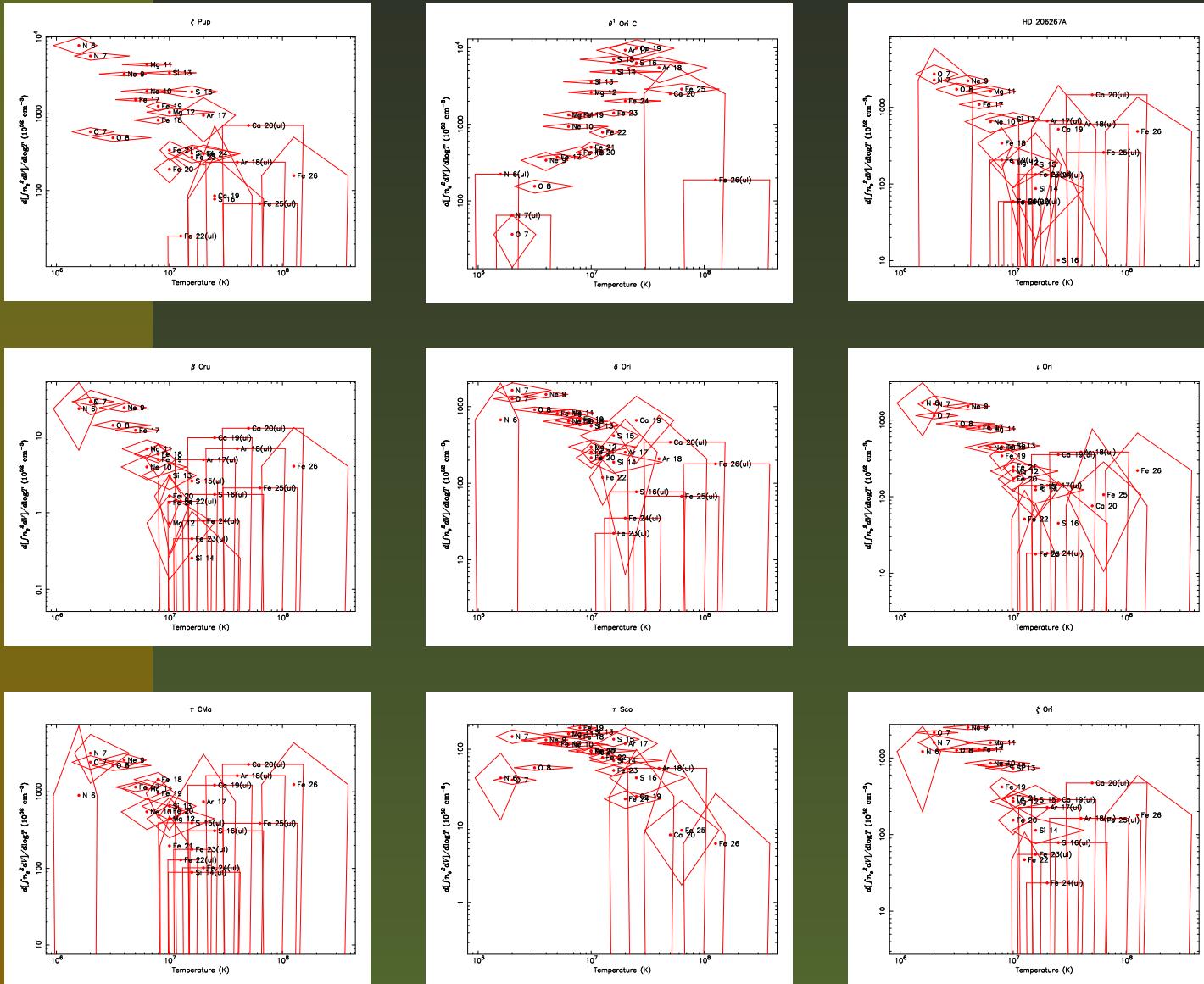
# $\theta^1 C$ Ori



# HD 206267A



# Gallery



# Drawbacks/Difficulties

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- Computational Cost
- Continuum error (Ion Continua)

# Conclusions/Con-X

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- Very hot temperatures only for young Orion trapezium
- DEMs for large numbers of CIE plasmas